



IB MYP YEAR 5
ASSESSMENT TASK
A Broad-based Test

Subject:	Y9 <i>Standard</i> Mathematics	Name : (Class)	()
Assessment:	Broad-based Test		
Date of assessment:	8 th June, 2012		

- This task assesses Criteria A and C;
- Time allowed – *1hour and 30 mins*;
- You must answer all the questions;
- Write your answers in the spaces provided;
- Show all of your working – not just the answer
- Scientific Calculator is allowed.

Criterion A		
Levels	Task-Specific Rubric	Official IB Descriptors
0	The student does not reach a standard described by any of the descriptors given below.	
1-2	Students are reasonably successful with the Part A questions only. Any errors here are relatively minor.	The student generally makes appropriate deductions when solving simple problems in familiar contexts.
3-4	Students are successful with Part A questions. The only errors in part B questions are minor.	The student generally makes appropriate deductions when solving more complex problems in familiar contexts.
5-6	Students are successful with Part A and B questions. The only errors in part C questions are minor.	The student generally makes appropriate deductions when solving challenging problems in a variety of familiar contexts.
7-8	Students are successful with Part A, B and C questions. The only errors in part D questions are minor.	The student consistently makes appropriate deductions when solving challenging problems in a variety of contexts including unfamiliar situations .

Criterion C		
Levels	Task-Specific Rubric	Official IB Descriptors
0	The student does not reach a standard described by any of the descriptors given below.	
1-2	Very little working is shown, and/or the steps shown are confusing. Only the most basic mathematical symbols are used with accuracy.	The student shows basic use of mathematical language and/or forms of mathematical representation. The lines of reasoning are difficult to follow .
3-4	The working shown is generally adequate. Only a few errors in symbols/terminology are evident. It is reasonably easy to follow a student's logic/reasoning.	The student shows sufficient use of mathematical language and forms of mathematical representation. The lines of reasoning are clear though not always logical or complete . The student moves between different forms of representation with some success .
5-6	There are very few, if any, errors in symbols/terminology. All steps in calculations are shown in their completeness. It is easy to follow all the student's logic/reasoning.	The student shows good use of mathematical language and forms of mathematical representation. The lines of reasoning are concise, logical and complete . The student moves effectively between different forms of representation.

Part A (Level 1-2 Questions)

1. Factorize the following

a. $x^2 - 16x$

Answer (a)

b. $x^2 - 16$

Answer (b)

c. $x^2 + 3x - 28$

Answer (c)

2. Consider a set of data 11cm, 15cm, 19cm, 8cm, 9cm, 12cm, 13cm, 15cm, 17cm and 12cm.

- a. Find the mean of this set of data.

Answer (a)

- b. Find the median of this set of data.

Answer (b)

- c. Find the mode of this set of data.

Answer (c)

Part B (Level 3-4 Questions)

3. In Ivan's family, there are 8 members, including Ivan himself, his father, mother, grandmother, 2 elder brothers, 1 elder sister and 1 younger sister. If a person is chosen at random, find the probabilities of the following events happening.

a. Ivan's elder brother is chosen.

Answer (a)

b. A male is chosen.

Answer (b)

4.

a. Show that $\cos^2 x - \sin^2 x = 2\cos^2 x - 1$

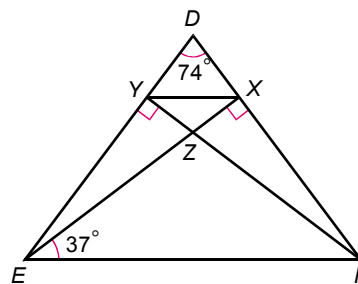
Answer (a)

b. If $\cos \theta = \frac{1}{5}$, find the value of $\cos^2 x - \sin^2 x$

Answer (b)

Part C (Level 5-6 Questions)

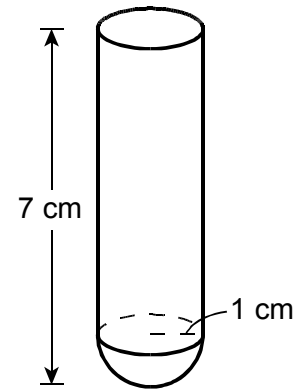
5. In the figure, DYE and DXF are straight lines. EX and FY are the altitudes of $\triangle DEF$ on DF and DE respectively, and they intersect at Z . $\angle EDF = 74^\circ$ and $\angle XEF = 37^\circ$.



- a. Prove that $\triangle DEF$ and $\triangle ZEF$ are isosceles triangles.

- b. Prove that $EF \parallel YX$.

6. The figure shows a solid composed of a right cylinder and a hemisphere. The height of the solid is 7 cm and the base radius of the cylinder is 1 cm.



- a. Find the volume of the solid.

(Express your answers in terms of π .)

Answer (a)

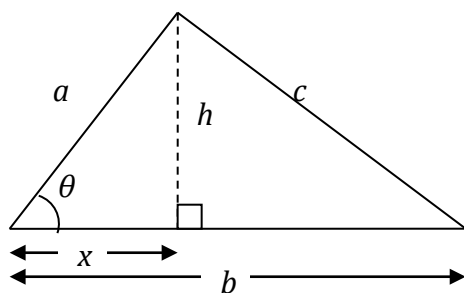
- b. Find the total surface area of the solid.

(Express your answers in terms of π .)

Answer (b)

Part D (Level 7-8 Questions)

7. Given a triangle:



For questions a – d, write equations that:

a. relates: a , h , and x

Answer (a)

b. relates: x , a and θ

Answer (b)

c. expresses c^2 in terms of x , b and h

Answer (c)

d. Using equations above, show that $c^2 = a^2 + b^2 - 2ab \cos \theta$

8. Given the points A(2,R), B (1,1) and C (4,3)

a. Find the distance between B and C

Answer (a)

b. Find the equation of the line passing through B and C

Answer (b)

c. If the line AC is \perp to BC, find the value of R

Answer (c)

d. Find the $\angle ABC$

Answer (d)

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